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MECHANIZATION IN SOVIET FOUNDRIES UPS PRODUCTIVITY

CONVEYERS HELP ELIMINATE BOTTLENECK -- Mekhanizatsiya Trudoyemkikh i Tyazhelykh Rabot, No 2, Feb 50

In recent years, the foundry of the Moscow Plant imeni Ordzhonikidze, Ministry of Communications, constituted a bottleneck. The plant had to turn to other enterprises for castings, increasing production costs and threatening the production plan.

A program was then begun to mechanize labor-consuming operations. Two months after completion of the program, the foundry was fully meeting the demands of the machine shop, while operating at only 65-70 percent of its capacity. Output of castings per worker rose 67 percent, amounting to 20.4 tons, as against the 12.2 tons for 1948. The number of production workers was reduced 9.5 percent, while wages rose on an average of 25 percent. The cost of castings was cut 21.8 percent, and there were 50 percent fewer rejects.

The foundry now produces 70-80 different items per month, with each item going into 300-350 castings. The weight of the castings varies between 0.1-90.0 kilograms.

There are four main sections in the foundry: molding-casting, shaking out and mixture preparing, core mold preparing and drying, and cleaning. Mold mixture from the preparing section moves by belt conveyer along a wall of the molding-casting section, where ten jolt-molding machines are situated in groups of two: one for the cope, the other for the drag. The machines can handle flasks of from 340 x 280 millimeters to 950 x 700 millimeters. Sand from hoppers located below the conveyer flows down chutes into the flasks.

After the molds have been made, they are mechanically hoisted onto a conveyer parallel to the other side of the row of machines, and pass along this conveyer to the cupolas, where the metal is poured into them. The castings within their flasks continue along the conveyer, which is a circular one, and pass through a cooling and gas-exhausting chamber into the shaking-out and mixture-preparing section, where the mold mixture is shaken out, and as much as possible of it reclaimed. The empty flasks then begin their journey back to the molding machines on the circular conveyer, and the cycle begins again.

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Mold cores are prepared in a section at the opposite end of the foundry from the mixture-preparing section. The cores are heated in a ZhASh three-pass furnace, then are moved out on a narrow-gauge railroad to the circular conveyer, to be inserted into the prepared flasks just before casting.

The runners, shaking-out grids, molding machines, and other equipment were produced at the Krasnaya Presnya Plant.

MOLDING TABLE PLAYS BIG ROLE -- Vestnik Mashinostroyeniya, No 2, Feb 50

A jolt-molding table in one section of the Sverdlovsk Uralmash Plant can handle molds for 15-ton castings, in flasks of 6,000 x 3,000 x 1,500 millimeters. The table itself is 6,500 meters long and 3,500 meters wide. It is attached to a plunger, which is seated in a cylinder 1,900 millimeters in diameter and 3,200 millimeters long. The cylinder is an integral part of the bed, upon which the table rests when not in motion. At regular points along the top of the bed are rubber shock absorbers set in metal sockets.

The jolting action, which packs the mold mixture around the pattern inside the flask, is effected through raising the table and cylinder, which weighs 39 tons, and allowing the unit to drop onto the rubber shock absorbers. This is done in rapid succession, with the table rising 45-60 millimeters for each jolt. Compressed air is the motive power.

The mold mixture was packed in one flask, having dimensions of 2.5 x 2.5 x 1.5 meters, in 364 jolts, at the rate of 92 per minute.

A gantry crane is brought into play to turn the cope through 180 degrees for removal of the pattern.

The prepared mold mixture is fed to the jolt table by two overhead belt conveyers, from which it passes down adjustable chutes into the flasks. The used mixture goes back for reprocessing on two underground belt conveyers.

When preparing molds for 15-ton castings in the ground, or in average-size flasks, by hand methods, 2.2-3.25 tons of cast material per cubic meter of foundry space are produced annually. At Uralmash, it is estimated that the present undertakings in mechanization will increase that productivity over 100 percent.

NEW MACHINES REPLACE LABOR IN FOUNDRY -- Moskovskaya Pravda, No 31, 26 Mar 50

A conveyer recently installed in the foundry of the Kompressor Plant has permitted a considerable reduction in the number of hand-performed operations. A sand slinger has been put into operation, serving heavy molds. With the aid of this new machine, one worker can do the work of several.

APPLICATION OF PRESSURE CASTING GROWS -- Leningradskaya Pravda, No 75, 29 Mar 50

Pressure casting of pig iron, steel, and nonferrous metals, using air or gas in the molds, is being progressively more widely adopted in Leningrad enterprises.

This method of casting was discussed at a meeting called by the House of Technology and the Leningrad Branch of the Scientific Engineering-Technical Society of Foundry Workers. An address was made about a new founding technique which is greatly raising the quality of pig-iron castings, cutting steel-casting rejects 50 percent, decreasing costs, and speeding up the production cycle.

It was resolved at the meeting to further foster the collaboration of scientists with foundry workers to improve the quality of castings.

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